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APRIL  
1949

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Vol. 17. No. 4

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20 Queen St., Melbourne, C.I.  
Telephone: MU 5154.

PRINTERS:

H. HEARNE & CO. PTY. LTD.,  
285 Latrobe St., Melbourne.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," Law Court Chambers, 191 Queen St., Melbourne, C.I., on or before the 15th of each month.

Subscription rate in Australia is 5/- per annum, in advance (post paid), and A7/6 in all other countries.

Wireless Institute of Australia (Victorian Division) Rooms. Telephone: FJ 6997.

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# AMATEUR RADIO

*Published by The Wireless Institute of Australia,  
Law Court Chambers, 191 Queen Street,  
Melbourne, C.I*

## EDITORIAL



### INSTITUTE MEMBERSHIP

A recent survey of Divisional membership returns reveals some interesting facts which are of importance to the growth and development of the Institute.

Whilst the proportion of full members to A.O.C.P. holders is still maintained at its usual high level, there is nevertheless an indication that some Divisions are not fully cognisant of the desirability of enlisting in our ranks many of those who were trained in radio factories and signals or radar units during the War. Apart from the need for attracting these people into the Institute, there is the national asset aspect to be considered, as all those with an up-to-date knowledge of the electronic art provide a vital nucleus in times of emergency.

There is also a large proportion of existing members who are not A.O.C.P. holders who should be encouraged at the earliest opportunity to qualify for this certificate and thus become full members of the Institute.

The figures under review further reveal that while some of the smaller Divisions are show-

ing marked improvement in recruiting, the larger Divisions are not maintaining the high level of new members recently attained. It is desirable that all concerned investigate this question to ascertain whether proper and effective efforts are being made to attract and assist those interested in the radio art. We look to the larger Divisions to set the lead in this respect as their prospective members are more plentiful than in the smaller Divisions.

The objects of the Institute shall be to encourage and assist all persons interested in any or all aspects of Amateur Radio and allied techniques and to promote the extension of interest and active participation and co-ordination in such pursuits as the above.

We are naturally anxious that all Divisions should always bear these important objects in mind, and by their activity in this direction, strengthen our membership throughout the Commonwealth.

—Federal Executive.

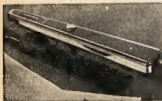
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# A HIGH STABILITY, V.F.O.

BY ERN MARSTELLA,\* VK2AEZ

Some months ago a new type of oscillator, known as the "Clapp," was featured in "QST," for which very high stability was claimed, and as this oscillator appeared to have good possibilities, the Writer decided to build up a v.f.o. incorporating it, and check its performance.

On completion of the v.f.o., and with the necessary adjustments, it was found to be equal, and in some cases better than some crystals for stability, staying in zero beat with a local b.c. station for four hours. It was then decided the unit was the "answer to a Ham's prayer"—variable frequency with crystal stability, that is not an idle boast.

Another feature of the oscillator is that after allowing a minute or so for tube warm up, it can be used immediately, without any trace of drift. This is an important point, if the Transmitter is put on the air at short notice, when chasing that elusive new country.

Only one fault appeared when the v.f.o. was first put into operation. A faulty 6J5 caused the frequency of the oscillator to jump and drift, but on replacing the tube the trouble vanished.

It is important to remember there is more in building a v.f.o. than putting the necessary components together, so a word of warning to those who wish to build a v.f.o. for the first time.

Variable condensers tuning the oscillator must be good, no backlash, end play, slackness in the bearings, etc. Coils should preferably be air wound, and held together with cemented strips. If formers are used, they should be ribbed and the material used in their construction should be non-porous. Fixed condensers should be silver mica, but these are not readily available here. Mechanical and electrical stability are vitally important, and all wiring should be in heavy gauge wire, and all components rigidly mounted. If we all took more trouble to watch our components, wiring, etc., we would benefit much from it.

The Writer was fortunate in having an American "Cardwell" condenser, with straight line tuning, which had very good bearings, and was doubly spaced, the plates being of very heavy gauge aluminium.

Referring to the schematic diagram, it will be seen that the oscillator resembles that of the Colpitts, feedback being controlled by the ratio of C4 to C5, and differs from normal methods of

feedback inasmuch as the circuit uses capacity instead of inductance. Frequency is determined mainly by L1, C1, C2, C3 in series, in parallel with the resonant of C4 and C5 in series.

To locate the band, use all wave receiver, and leaving L1, C4, and C5 unaltered, find its frequency of operation. Then bring the frequency to 3.5 Mc. by adjusting C2 and C3.

The inductance L1 is 16½ turns of 22 gauge enamelled wire, slightly stretched, and close wound on a 1½" ribbed former. Make sure the inductance and condensers are mounted in such a way that they are not affected by heat from nearby components. The grid circuit resonates in the 3.5 Mc. band.

The rest of the circuit is self explanatory. V1, the oscillator, is a 6J5, but a 6SJ7, triode connected, or a 6AC7 also triode connected, operate just as well, although calibration will alter if the valves are changed. It might be a good idea to use a small variable condenser across C1, C2, C3 to adjust for difference in frequency. The output of the oscillator is taken from the cathode to minimise loading effects, thereby reducing the output somewhat. Coupling can be done from the plate in the normal manner, but the cathode method of taking the output was found to be the best.

The second stage uses a 6SK7, or equivalent, and functions as an isolator. It is needed to isolate the oscillator from the power stages, which would react on the frequency of the oscillator if coupled

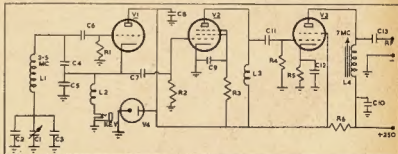
directly to it. Two isolating stages may be used for complete isolation, if desired, by adding another identical 6SK7 stage. The output from such untuned stages is small but lessens the chances of frequency change.

The third stage uses a 6V6G as a doubler, doubling from the fundamental frequency of 3.5 Mc. to 7 Mc. The output is tuned by a perma-tuned coil, which has a diameter of 9/16ths, and was originally a short wave coil. The old windings were removed, and the former wound with 34 turns of 32 gauge enamel, close wound, and so placed that the movable iron slug can be varied from right out, to right through the coil. The resonant point is very broad, and when found adjust to the centre of the band. If you care it can be arranged to have normal tuning with a condenser, by bringing the shaft through the front panel, and reducing the turns on the coil slightly so that the circuit will tune to 7 Mc.

Output of the v.f.o. is fed to the crystal socket if a 7 Mc. crystal is used. If the crystal is 3.5 Mc., it would be better to have the plate of the 6V6G untuned (the same as the isolator stage), and feed to the crystal socket in the normal manner. It is advisable to see that the r.f. chokes are different in both plate circuits, otherwise oscillation may occur.

Voltages for the 6J5 plate, 6SK7 plate and screen, and 6V6 screen, are voltage regulated by a VR150/30, but will work quite well without a regulator, as voltage has very little effect on frequency. The voltage on the screen of the 6SK7 should not exceed 80 volts for best results. The supply voltage to the plate of the 6V6G is 250, and the r.f. output compares favourably with the average crystal.

(Continued on page 7)



C1—100 pF, variable (see text).

C2—100 pF, silver mica.

C3—150 pF, " "

C4—0.001 uF, " "

C5—0.001 uF, " "

C6—0.0001 pF, " "

C7—0.0001 pF, mica.

C8—0.05 uF, paper.

C9—0.01 uF, " "

C10—0.1 uF, " "

C11—0.0001 pF, mica.

C12—0.01 uF, paper.

C13—0.0001 pF, mica.

R1—100,000 ohms, carbon.

R2—50,000 " "

R3—3,000 " w.w., 10 watts.

R4—100,000 " carbon.

R5—400 " w.w.

R6—2,500 " " 10 watts.

V1—6J5 (or 6SJ7 as triode).

V2—6SK7.

V3—6V6G.

V4—VR150/30.

L1—See text.

L2—2.5 mH, R.F.C.

L3—2.5 mH, " "

L4—See text. " "

\* Terrigal Road, Erina, N.S.W.



# REWINDING D.C. RELAYS

BY A. K. HEAD,\* VK3AKZ

If you have collected a variety of relays, working on different voltages, then it is rather difficult to find an economic way of energising them. One way is to have a small metal rectifier per relay and provide the various a.c. voltages necessary. This is quite feasible with the present availability of 100 Ma. rectifiers at a few shillings each in disposals.

A more satisfactory way is the re-wind the relays so as to all work on the same voltage. Then one big metal rectifier can supply the lot; and to make the rewinding easy there is a simple rule for calculating the new winding. All you need do is:—

(i) Measure the gauge of wire used in the old winding.

(ii) Mark the depth to which the bobbin is filled by the old winding.

(iii) Rewind the bobbin to the same depth with the new wire (the gauge of which is worked out as described later). No need to count turns, just wind on

wire until the new winding occupies the same volume as the old.

(iv) The gauge of the new wire can be found from the rule: To double the operating voltage rewind with wire three gauges thinner than the old wire; to halve the operating voltage rewind with wire three gauges thicker than the old wire.

Or if you want to change the voltage in some other ratio, then change the wire gauge as in the following table:—

Voltage Ratio	Change in Gauge
1.3	1
1.6	2
2	3
2.5	4
3.2	5
4	6
5	7
6.3	8
8	9
10	10

(v) When a relay has been rewound by this rule, the current it draws will change inversely as the voltage ratio, e.g., if a 24 volt 50 Ma. relay is rewound to operate on 12 volts, then as the

operating voltage has been halved, the new operating current will be double, i.e. 100 Ma.

To illustrate this method, suppose a 24 volt, 480 ohm relay is to be rewound for 12 volt operation. The wire of the old winding is measured and found to be 28 B. & S. Since we want to halve the operating voltage, it must be rewound with wire three gauges thicker, i.e. 25 B. & S. So the old winding is stripped off and the bobbin rewound to the same depth with the new wire. Originally it drew 50 Ma. so with the new winding it will draw 100 Ma.

If you want to change the voltage in a ratio which is not given in the table, then the nearest entry will be good enough, e.g. in rewinding from 18 volts to 6 volts, changing the wire gauge by five will do.

These rules are only true for enamelled wire—so don't try to use them for silk or cotton covered wires. This is because of the larger volume taken up by these insulations. They also only apply strictly when the gauges are measured in B. & S., but for practical purposes they also apply to S.W.G.

\* Assistant Technical Editor, 12 Peverill Street, Balwyn, Victoria.

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# IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

APRIL 1949

The accompanying charts have been prepared by the Ionospheric Prediction Service of the Commonwealth Observatory. The first set of the series was published in the November, 1948, issue of this magazine, together with an article explaining the nature of the forecasts and how to use them. Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

These charts refer to the following world zones:—

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3	N.-West America	San Francisco
3a	N.-East America	New York
4	Central America	Barbados
5	South Africa	Johannesburg
6	Far East	Manila

The forecasts have actually been prepared for point-to-point circuits between either Canberra or Perth and the overseas terminals mentioned in the above table. It is, however, to be expected that the charts will provide an approximate indication of ionospheric conditions for all Amateur contacts from South-Eastern Australia and from Western Australia to the various world zones. No forecasts are given from Perth to zones Z2 and Z4 for the current month. Chart P-Z2 would be essentially similar to P-Z1 while chart P-Z4 would be unreliable due to auroral activity in high northern latitudes.

## USE OF CHARTS

All that is necessary in using the charts is to select a time (G.M.T.) during which a specified Amateur band frequency is below the maximum usable frequency (m.u.f.) of the F region of the ionosphere but above the lowest useful frequency (l.u.f.) for the desired contact. In two cases, zones 1 and 3a, it is necessary to consult both the short-route (s.r.) chart and the following long-route (l.r.) chart.

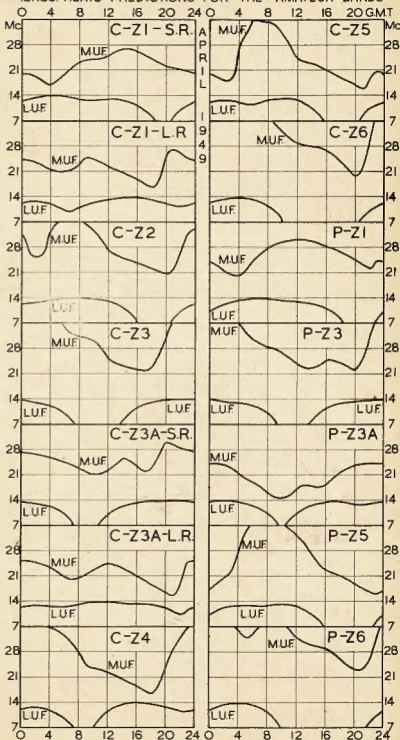
## QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular answers to the following questions on the Canberra-Cairo circuit for April would be useful.

1. Was the 28 Mc. band open consistently during the periods 0400 to 1200 hours and 2200 to 0100 hours G.M.T.?
2. Was the 14 Mc. band open, but noisy, from midnight to noon G.M.T.?
3. Were conditions good on the 14 Mc. band throughout the period 1500 to 2300 hours G.M.T.?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.

## IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS



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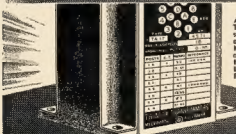
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3	100	250	10
4	100	250	10
5	100	250	10
6	100	250	10
7	100	250	10
8	100	250	10
9	100	250	10
10	100	250	10

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# PARALLEL CATHODE MODULATION

## Some Light On A Little-Known System

BY GORDON N. HARLEY,\* VK4GH

The Modulator here described has aroused very favourable comment from stations contacted and so many requests for detailed information have been received, that it was thought best to present it through the pages of "Amateur Radio."

This method of modulation is of particular interest to the c.w. man who wants to use phone occasionally, for no expensive equipment is needed and most of the parts will be found lying idle in any Ham shack. At the same time it is worthy of permanent installation in a purely phone transmitter, for excellent quality is obtainable with ample percentage of modulation.

**CIRCUIT** The system gets its name from the fact that the modulator tube and the r.f. tube are in parallel across the modulation choke. It is, in effect, an application of the familiar "cathode follower" system of coupling, and possesses two outstanding advantages. Firstly, because the cathode impedances of the two tubes are almost the same, no matching transformer is needed; all that is required is a good audio choke capable of carrying the sum of the plate currents.

Secondly, because the cathode coupled modulator tube operates with approximately 100 per cent. degenerative feedback, distortion in this stage is greatly reduced. Because of this degenerative feedback the grid swing needed on the modulator tube is quite high, and an extra stage of voltage amplification may be needed. This slight disadvantage is more than offset, however, as the cost of a voltage amplifier is well below that of a 25 to 50 watt modulator.

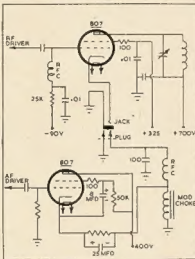
There is a further advantage—the modulator may be used with any of several final stages, simply by plugging it into the keying jack in the cathode circuit.

**OPERATING DATA** For greatest efficiency the r.f. stage should be run at the maximum plate voltage set down for Class C telephony. Grid bias, which should be at least three times cut-off for the plate voltage used, may be obtained from batteries, grid-leak, cathode resistor, or any combination of these. The total bias must be by-passed for audio; here the by-pass condenser is 0.01  $\mu$ f. mica type.

In deciding the safe plate input for a single tube, take the maximum rating given for plate dissipation for any class of service (usually class-B r.f. amplifier or grid modulated conditions) and multiply by 2.2; permissible plate current is then easily calculated. This input assumes correct adjustment throughout the r.f. final stage; preliminary tuning should always be done at reduced plate voltage.

R.F. excitation power should be at least 5 per cent. of the final plate input. The power supply of the r.f. driver must be well filtered; failure to achieve this result will cause grid modulation of the final at the ripple frequency.

Audio power required is 10 per cent. of the r.f. final input. Here an 807 is used, as shown in the diagram, but any



triode, tetrode or pentode (or several in parallel) may be used, provided the power output is sufficient. If a tetrode or pentode is used, the 8  $\mu$ f. by-pass condenser from screen direct to cathode (NOT earth) must be included.

In tuning it will be found that comparatively heavy antenna loading is needed, or the positive modulation capability of the r.f. stage will not be sufficient when excitation is increased until the tube draws calculated plate current. If the antenna loading is too heavy for a given plate current, the efficiency will suffer with consequent overheating. Antenna coupling should be increased until 100 per cent. modulation capability is obtained with normal plate current, but not beyond this point. Grid current will vary according to the type of tube used as r.f. final. Modulation capability may be improved in some cases by reducing grid drive.

### PRACTICAL APPLICATION

The maximum plate dissipation of the 807 is given as 30 watts, which multiplied by 2.2 gives 66 watts as the permissible plate input; maximum plate voltage for Class-C telephony is shown as 750 volts. However, it was decided to keep below these limits, and the following are operating voltages and currents as used here.

**R.F. Final**—Plate volts 700, plate

current 85 Ma., screen volts 320, control grid volts —175, grid current 2.5 Ma. The bias is made up of 62.5 volts from grid leak, 90 volts from batteries and 22.5 volts from drop across the modulation choke. The screen voltage is a little high, but no overheating occurs.

**Modulator**—Plate volts 400, plate current 32 Ma., screen volts 225, control grid volts —22.5 (drop across choke).

As used here the cathode resistor for the modulator is not necessary, as the drop across the choke holds the plate current down. Should greater modulator bias be found necessary, a resistor of appropriate value may be inserted as shown to make up the difference between the drop across the choke and the required voltage.

The r.f. choke and by-pass condenser in the "hot" lead from the modulator were found necessary here because quite a lot of r.f. was coming in via this lead.

Should any reader have queries, the Writer will do his best to assist on receipt of a stamped envelope.

### A HIGH STABILITY V.F.O.

(Continued from page 3)

If you have taken every care with the building of this unit, you should have no trouble from instability, and after it is adjusted, allow to run for a period against some crystal oscillator of known stability, adding positive or negative co-efficient condensers across C1, C2, C3, if necessary, and finally check the tone of the note compared to the crystal. If break-in keying is preferred, this unit will follow very nicely. Insert the key in the cathode lead of the oscillator, from the bottom of L2 to earth. The final step is to resonate the 6V6G plate tank.

This v.f.o. has been in use on 14 Mc since November, 1948, and over 200 DX contacts have been made, and except for the period when the oscillator tube was faulty, every report has been T9 and T9X; to sum up, the Writer is more than pleased with the performance of the unit.

Now for a word of warning for newcomers to v.f.o. operation—

1. Make sure you are always in the band.
2. When you have finished a DX QSO, shift your frequency if you have called that station.
3. Never wander over every Kc. of the band if you are not getting out unless you are sure you are being QRM'd—it may be conditions.
4. Never put the whole transmitter on the air when "v.f.o.-ing" near the DX station's frequency. Use a separate power supply for the v.f.o., and adjust the v.f.o. to frequency early.

\* 208 John St., Maryborough, Qld.

# Crystal Controlled Transmitter For 144 Mc.

BY J. COULTER,\* VK5JD

This transmitter should find favor with those interested in v.h.f. and who failed to draw an SCR522 from the disposals "lucky dip."

With the exception of the 832, all parts are readily available and reasonably cheap. Quite good results may be had without the 832. Substitute a pair of RL7s and it is still possible to put a very respectable signal on the band.

Very little information regarding the RL7 was available. The circuit values specified are the result of "cut and try." It is possible that further experiment would result in greater efficiency. However, neither tube is working above the recommended plate dissipation rating.

Inspection of the circuit diagram will show that it is quite a straight forward four stage transmitter but careful construction is necessary if optimum results are to be obtained.

The chassis measurements are 17" x 6" x 6". Neither knobs or dials are used—all tuning being done with a screw driver, to ensure a compact layout.

The crystal oscillator is located on the left hand end of the chassis, with

\* 49 Farnham Rd., Ashford, South Aus.

both cathode and plate coils mounted below. Whilst the circuit diagram shows the suppressor at a positive potential, this may not be necessary. (This arrangement is the remains of early efforts to take off the sixth harmonic and delete one stage.) Tuning is quite normal and is adequately covered in the Handbook. Crystals used are in the 8 Mc. to 8.2 Mc. region. The plate circuit of the 6AC7 oscillator being tuned to the third harmonic of the crystal.

The RL7 tripler stage follows, being placed as closely as possible to the oscillator plate tank as "lead length," or rather the lack of it, becomes important at these frequencies. No difficulties should be experienced with this stage.

The doubler stage, which also employs the RL7, gave the most trouble. The coupling between stages is most critical. Optimum spacing of grid circuit and previous plate appears to be about 1", and the grid current will be 6 Ma. The Eddystone r.f. choke is also critical. The actual inductance is 5.32 uH. and they are readily available and should be used if best performance is to be obtained.

Plate tank and condenser are mounted above the chassis but this is mainly for convenience in further experiments. There should be no reason against

mounting below as the plate circuit is at twice the frequency of the grid circuit.

The p.a. is mounted on a vertical shield which, together with the recommended socket, provide adequate isolation between the plate and grid circuits. Should another type of socket be used, it will be necessary to space the socket from the shield. The spacing must allow the tube to protrude through the shield to the level of the tube's internal shield to obtain the same degree of circuit isolation. This appears to be the only constructional precaution.

Having completed the wiring of the transmitter, filament voltage should be applied to all stages and checked. Commencing with the oscillator, apply h.t. and tune, stage by stage to the grid of the p.a. With the p.a. grid drawing 3 or more millamps, apply reduced plate and screen voltage to the 832. If the grid current drops, the shielding is insufficient or the stage needs neutralising. The latter is easily accomplished with two pieces of wire, fed through the shield from grids to opposite plates. The wires may be cut or spaced until neutralisation is effected. With the tube

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stabilised, the plate input may be run up to the rated value of the 832 or 832A.

Whilst the transmitter is mainly used for telephony, it has been keyed for c.w., quite satisfactorily. Screen keying of the two RL7s was the method used, with a small battery to bias the 832 (45 volts).

Coupling to the antenna will vary with the type of feed line in use. It is recommended that the coupling be tuned as outlined in "QST," August 1947. This is far superior to the method usually adopted—"poke a piece of flex in until she draws."

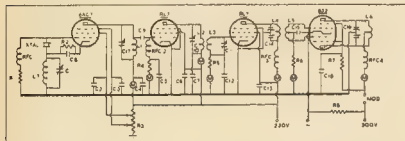
Voltagcs and currents of the various stages are:—

	Volts	Ma.
Oscillator plate ...	220	10
Tripler plate ....	220	—
Tripler grid .....	—	4
Doubler plate .....	220	24
Doubler grid .....	—	6
P.A. plate .....	300	42
P.A. grid .....	—	2.5

Note.—RL7 screens are operated at the same potential as the plate. In the final set-up the oscillator and tripler plate currents are not read. They are adjusted to manufacturer's rating and the meter removed. Grid current of the following stage is checked to indicate resonance.

The screen by-pass C18, shown in the diagram, is not always necessary at 144 Mc. A small screen by-pass is built into the 832 to obtain symmetry and minimum of lead inductance, and will be adequate in some cases (e.g. 522 transmitter). The R.C.A. socket UT107 has screen and filament by-passes as an integral part of the socket, or if this socket is not available, an ordinary socket with a by-pass of 500 pF., wired directly across the socket pins with the shortest possible lead length, would be satisfactory.

VK5GF has commissioned a similar transmitter, but is using EF50s in place of the RL7s with equally good results. The coil data given would probably vary slightly with the change of tubes, however.



- C1—75 pF. variable.
- C2, C3, C4, C5—0.01 uF.
- C6, C7—0.0009 uF.
- C8—0.001 uF.
- C9—50 pF.
- C10, C11—25 pF. variable.
- C12, C13, C14—500 pF.
- C14—25/25 pF. split stator.
- C16—9/9 pF. split stator.
- C17—40 pF.
- C18—See text.
- R1—50,000 ohms.
- R2—200 ohms.
- R3, R8—20,000 ohms V.D.
- R4, R6—20,000 pF.
- R5—18,000 ohms.
- R7—20,000 ohms, 2W.
- RFC1, RFC2, RFC3—Four pie, R.C.S.
- RFC3, RFC4—Eddystone v.h.f. type.

- L1—18 turns 14 g. bare copper, 1/2" diam., 1 1/2" long.
- L2, L3—3 turns 14 g. bare copper, 1/2" diam., 1/2" long.
- L4—Hair-pin, 3" long, 1 1/2" wide.
- L5—Hair-pin, 3" long, spacing adjusted to obtain required grid Ma.
- L6—4 turns 10 g. copper, 1/2" diam., 1 1/2" long.
- L7—11 turns 18 gauge enamel, 1/2" diam.
- RL7 Socket Connections:—
- 1, 7, 8—Earthed to one side of socket mounting bolt.
- 2—Plate
- 3—Screen by-passed to 4 and 5.
- 4, 5—Earthed to other mounting bolt.
- 6—Grid.
- 9—Filament.
- Key-way in line with pin No. 1.
- † For further details on RL7 refer to "Amateur Radio," November, 1946, page 8.

## HARMONIC REDUCTION WITH STUBS

Hams who are having trouble with harmonic radiation sometimes can make a substantial reduction in the amplitude of even-harmonic radiation by connecting the open end of a shorted quarter-wave stub to the antenna feeders or transmission line.

The function of such a stub is to present a short-circuit to all even-multiple harmonics of the transmitted frequency, while presenting a high impedance to the fundamental. Thus the stub causes no detuning or power loss, but eliminates the even-multiple harmonics.

The stub may be connected at any point along tuned or untuned transmission lines of either the parallel wire

or the co-axial type. A "T" connector will be necessary for tapping into co-axial lines.

If the transmission line is being used for more than one frequency band, the stub line may be made long enough for the lowest-frequency band used, and a shorting bar may be used to set the stub length to the proper position for each band. Continuous protection from lightning and static charges may be obtained by grounding the shorted end of the stub, and it will not be necessary to remove this ground during operation. —"QST," December, 1946.

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# 1949 Trans - Tasman Contest

## RULES

1. The Contest will commence at 0400 hours G.M.T. on Saturday, 4th June, and continue until 0200 hours G.M.T. on Sunday, 5th June.
2. The Contest will be divided into three sections, namely, Phone, C.W. and Open. The Open Section will be a combination of both Phone and C.W. operation. A contestant may enter for each or all sections provided a separate log is submitted for each section entered.
3. Operation may be on any of the licensed Amateur bands, but transmissions will be in accordance with the Regulations existing in each country.
4. A six number serial group must be exchanged before any points can be claimed. The first three numbers, chosen by the entrant station, shall be retained throughout the Contest. The second three numbers will commence with 001 for the station's first contact, 002 for the second contact and so on.

5. A station may be operated by more than one operator, provided a separate log is entered by each operator.

6. SCORING.—Three points can be claimed for each complete exchange of numbers. The total points will be multiplied by the number of ZL districts worked on each band in the case of VK stations, and the total number of VK districts worked on each band in the case of ZL stations. For the purpose of this contest, the prefixes VK2, VK3, VK4 etc. will constitute districts, except VK3s in Darwin which will not constitute a separate district. ZL prefixes will likewise count as multipliers for VKs.

7. LOGS.—A log showing, in the following order: the Date, Time (G.M.T.), Station Worked, Band Used, Number Sent, Number Received, and Points Claimed and a Summary at the end must be forwarded to Box 2611W, G.P.O., Melbourne, to reach the Contest

Committee not later than the 4th July, 1949. The envelope should be endorsed "Trans-Tasman." The log must be signed by the operator and include a statement that he has complied with the Regulation of his country. The input to the final stage of the transmitter will also be shown.

8. AWARDS. Attractive Certificates will be awarded in each Section to the outright winners in Australia and New Zealand, and also to the winners of each Section in each District of Australia and New Zealand. The outright winners will not be eligible for the District awards. Further District certificates in each Section may be awarded at the discretion of the Contest Committee.

9. Notwithstanding anything contained in the Rules, the Contest Committee of the W.I.A. shall have the power of final decision in all matters of dispute or breaches of these Rules.

## Results of 1949 National Field Day Contest

It is pleasing to note that this year greater interest was shown in this Contest and the comments of those who went out with portable equipment augers well for the 1950 Contest. However, still more interest could be taken, for it is an effective way of trying out that portable gear that may be required for some sudden emergency. Congratulations to the Section winners this year, who in most cases did a good job under somewhat trying conditions.

The C.W. Section winner, VK3UM/3UH, did the trick for the second year in succession and ran up the best score of the Contest. They journeyed to the same location again. One Tree Hill in the Dandenongs and equipment consisted of a Type 3 Mark II with 15 watts on 7 and 14 Mc. and a 6J5-6L6 rig with 30 watts on 28 Mc. Unfortunately 28 Mc. was not open and no contacts were made. The Edystone S840 no doubt, contributed largely to their good score, as well as the long wire and 3 element rotary for 28 Mc. Continents worked were Oceania, North America, Europe and Africa on 7 Mc., and Oceania, Europe and Asia on 14 Mc.

The Phone winner, after a difficult start in a gale, ran up a very good score with only 7 watts into a four stage rig ending in a 1625. This party VK7SK/SJ, used a Phillips' bandswitch receiver and a 120 feet per leg vee beam which helped them to contact the greatest number of stations. They worked Oceania, North America and Asia on 14 Mc.

The Open winner, party-VK4HR/RT

(old hands on v.h.f. field days), went properly prepared complete with three stage transmitter using an 832 with 18 watts c.w. and 14 watts phone on 14-28-50 Mc., and a BC459 with 30 watts on 7 Mc. The receivers were a BC348 on 7-14 Mc., 10 valve home-built on 14-28 Mc., and a modified SCR522 on 50 Mc. Antennae consisted of dipoles on 7 and 14 Mc., folded dipole on 28 and two element rotary on 50 Mc. They worked Oceania on 7 Mc.; Oceania, Asia, Africa, and North America on 14 Mc.; and North America on 28 Mc.

There is some talk among the N.F.D. boys of hiring caravans next year! It would appear they may need them to keep up with Tibby. To the other entrants, we say "Thank You" for forwarding the logs.

### SCORES

#### C.W. Section

VK3UM/3UH	..	....	2	28	7	269	Pts.
VK4HR/4RT	..	..	3	20	6	224	"
VK2PA/2SH/2ASF	3		21	6		219	"
VK4JA/4RC/4EL	2		20	5		178	"
VK3ADB/3YS	....		3	13	4	133	"

#### Phone Section

VK7SK/TSJ	2000	1	53	3	224	Pts.
VK3ADB/3YS	2000	3	21	5	185	"
VK3AN/3VC	2000	3	23	4	157	"
VK3LN/3TF	2000	2	13	3	103	"
VK4HR/4RT	2000	3	7	2	77	"

### Open Section

VK4HR/4RT	...	4	27	6	251	Pts.
VK2PA/2SH/2ASF		3	27	6	243	"
VK3ADB/3YS	...	3	43	5	218	"

Figures above represent in the following order: Bands worked, contacts, continents worked, and total score.

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# FEDERAL, QSL and DIVISIONAL NOTES

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## NEW SOUTH WALES

Secretary.—Dick Dowe IVK2KP, Box 1734, G.P.O., Sydney.

Meeting Night.—Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney.

Divisional Sub-Editor: H. F. Treham, VK2BM, 5 Walmsley St., Burwood.

Zone Correspondents.—North Coast and Tablelands: P. A. H. Alexander, VK2PA, Hill St., Port Macquarie; Newcastle: E. J. Baker, VK2PF, 13 Skelton St. Hamilton, Newcastle; Coalfields and Lakes: H. Hawkins, VK2LZ, 27 Confort Ave., Cessnock; Western: G. J. Russell, VK2QA, 116 Regent St., Nymegen; South Coast and Tablelands: R. H. Rayner, VK2DO, 42 Pettit St., Yes, Southern E. N. Arnold, VK2QJ, 679 Forest Hill Ave. Albion Western Suburbs: A. C. Pearce, VK2AHB, 48 Harbortown Ave. Five Dock; Eastern Suburbs: H. Kerr, VK2AY, No. 4 Pitt, 144 Hewlett St., Brookvale; Sydney: L. D. Cuffe, VK2AM, 779 Military Rd., Mosman; St. George: J. A. Ackerman, VK2ALG, 32 Park Rd., Carlton; South Sydney: V. H. Wilson, VK2CW, Cr. Wilson St., and Marine Pde., Maroubra.

## VICTORIA

Secretary.—C. C. Quin, VK3WQ, Administrative Secretary.—Mrs. L. C. Cross, Lyle Court Chambers, 191 Queen St., Melbourne, C.T.

Meeting Night.—First Wednesday of each month at the Radio School, Melbourne Technical College Zone Correspondents.—North Western: B. R. Mann, VK3YW, 12 Skene St. Stawell; Western: B. R. Mann, VK3YW, 12 Skene St. Stawell; South Western: B. S. Birtles, VK3BJ, 174 Rialto Street, Melbourne; Eastern: North Eastern: J. Miller, VK3ABG, "Emileville" Avenue, Park North-Western Zone: Harry Dobson, VK3HF, 42 Walnut Ave., Mildura; Eastern Zone: J. D. Chilvers, VK3DI, 20 Smith St., Longbeach.

## FEDERAL

### DX C.C. NOTES

By the time this appears in print, most of the DX C.C. stations endorsing additional contraindications of 80 countries, will have been issued to those entitled to them.

### PHONE

Zone	Countries
YESJD (16)	.. .. . 81 111
YESRU (17)	.. .. . 109
YESBR (18)	.. .. . 101
YESKW (14)	.. .. . 101

### O.W.

Zone	Countries
VK3CN (3)	.. .. . 40 134
VK3YW (18)	.. .. . 39 127
VK3RB (14)	.. .. . 39 127
VK3KK (10)	.. .. . 39 133
VK3ED (7)	.. .. . 40 116
VK3AR (10)	.. .. . 39 116
VK4DA (19)	.. .. . 34 123
VK3QL (15)	.. .. . 40 118
VK3MR (13)	.. .. . 38 106
VK3RB (12)	.. .. . 104

### OPEN

Zone	Countries
VK3DI (3)	.. .. . 40 119
VK3SG (9)	.. .. . 39 153
VK3EK (11)	.. .. . 38 128
VK3EO (4)	.. .. . 38 126
VK3Y (12)	.. .. . 37 125
VK4JE (18)	.. .. . 39 128
VK3JO (6)	.. .. . 38 128
VK3D (2)	.. .. . 38 126
VK3KW (19)	.. .. . 39 120
VK3EL (16)	.. .. . 39 116

### NEW OPEN MEMBERS

19 VK4BE	.. .. . 163
10 VESVY	.. .. . 104
11 VESOP	.. .. . 168
12 VESAM	.. .. . 168

### COUNTRIES LIST

Until further notice, the only official prefixes issued in Germany are as follows:  
DL instead of D3 (Austrian Zone)  
DLA instead of D4 (American Zone)  
DLF instead of D6 (French Zone)

## WE BROADCAST

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official broadcasts.

VK2WY.—Sundays, 1100 hours EST, 7195 Kc. and 2000 hours EST, 50.4 Mc. No frequency checks available from VK2WY. Intra-State working frequency, 7175 Kc.

VK3WY.—Sundays, 1130 hours EST 7195 Kc. Individual frequency checks of Amateur Stations given when VK3WY is on the air

VK4WY.—Sundays, 0930 hours EST simultaneously on 3750 Kc., 7190 Kc., 14,940 Kc., 52.4 Mc. and 144.138 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7010 Kc. Sunday is used from 1000 to 1630 hours each Sunday as VK4 query service to 4W1

VK5WY.—Sundays, 1000 hours EAST on 7194 Kc. Frequency checks are given by VK5WY on Friday evenings on the 7 and 14 Mc. bands.

VK6WY.—Sat. 2 p.m. Sun. 9.30 a.m. W.A.S.T. between 7000 kc. and 7200 kc. No frequency checks available

VK7WY.—Second and Fourth Sundays at 0630 hours EST on 7174 Kc. No frequency checks are available

## SILENT KEY

### VK2GR

During February New South Wales lost one of its old timers in the passing of Alex Robinson VK2GR. Alex had been sick for many months. But despite this fact, was a very active 20 metre phone man until his untimely end. He will be best remembered for the assistance he gave to the many beginners in the Western Suburbs of Sydney and many Amateurs today owe their radio life to his efforts. A member of the Gladesville Radio Club, his main diversion was to contact his O friends and bring back memories of his youth in England.

Things are still very confused regarding officially licensed stations, and as far as is known DA and DK calls are being used by ex-D stations and plates. It is proposed to issue the other DL prefixes at a later date in these ex-D teams. Substitute YK for ARI prefix for Syria.

## SWISS CONVENTION

The following are extracts from a letter from Mr. J. Dobbing of the P.M.G.'s Department, who is the Australian representative on the Frequency Board at present sitting at Geneva, Switzerland.—"I attended the 1924 Anniversary of the Swiss Section of the I.A.R.U. which was held at Fribourg on Sunday, 30th January. At the invitation of the International Relations Officer of the Union Suisse des Amateurs (U.S.A.), I represented both the P.M.G.'s Department and the W.I.A. as a member of the original committee. It was very well attended and great interest was shown in the W.I.A.'s history and development. I was asked to convey the best wishes of the U.S.A. to the President and members of the W.I.A."

## THIRTEEN AMATEUR HOURS

Elsewhere in this issue appears the rules of the 1949 Trans-Atlantic Contest, a contest held to pro-

## QUEENSLAND

Secretary.—W. L. Stevens VK4TB, Box 6381, G.P.O., Brisbane.

Meeting Night.—Last Friday in each month at the State Service Building, Elizabeth St., City.

Divisional Sub-Editor: F. H. Shannon, VK4SN, Mundubberry, via Rosewood.

## SOUTH AUSTRALIA

Secretary.—E. A. Bortley, VK5MD, Box 1234K, G.P.O., Adelaide.

Meeting Night.—Second Tuesday of each month at 17 Warramoon St., Adelaide.

Divisional Sub-Editor.—W. W. Parsons, VK5PS, 483 Esplanade, Henley Beach

## WESTERN AUSTRALIA

Secretary.—W. E. Coxon, VK6AG, 7 Howard St., Perth.

Meeting Place.—Padbury House, Chr. St. George's Ter and King St., Perth

Meeting Night.—Watch the Monthly Bulletin.

Divisional Sub-Editor.—VK6W, W. D. Couch, Mary Street, Watermans Bay, W. Australia.

## TASMANIA

Secretary.—J. Brown, VK7BJ, 12 Thirza St., New Town, Telephone: W 1328

Meeting Night.—First Wednesday of each month at Photographic Society's Rooms, 163 Liverpool St., Hobart

Divisional Sub-Editor.—Capt E. J. Cruise, VK7EJ, Angelsea Barracks, Hobart

Northern Correspondent.—C. P. Wright, VK7LZ, 3 Knight St., Launceston.

more closer friendships with our near neighbors, the ZLs. This Contest has been put back to the first week in June so that it does not follow too closely on other International Contests. It is only a short contest and does not require endurance or constitution of all day. We explain all VKs that take an interest in Contests to enter, and make it a huge success this year for yourselves and your brother Amateurs in ZL.

## FEDERAL CONVENTION

The Annual Federal Convention is being held in the Institute Rooms at 191 Queen Street, Melbourne, commencing at 1.00 hours, Friday, 15th April and concluding at midday, Easter Monday, 16th April (we hope). Any local Amateurs or Interstate visitors are cordially invited to attend any of the sessions during this period, as they will have an opportunity to hear a few of the problems involved in the administration of our Institute.

## W.A.S. RULES

We regret that we are at present unable to publish the Rules of the W.A.S. Award due to delays encountered within the Divisions in preparing for the Federal Convention. The rules, as approved by Federal Council, will be published as soon as possible. Credit will be strictly given in order of the date of working W.A.S. as your view or suggestion will not be given due recognition of your achievements.

## F.I.A.T.S. CHAIRS

As a result of a motion put by Federal Council to the Division it has been decided to continue the publication of these chairs. How long they continue is up to you as an individual—please let your Federal Council have your view or suggested improvements. Dr Green would be deeply appreciative to receive your comments also, so please send them in.

## AMATEUR CALL SIGNS

The following list will be the first supplementary list of the new Call Signs which will be available, December and January amendment lists will be included in the new publication, which would be sent to amend with the blank interleave. The P.M.G. are to be complimented on making this facility available to enable members to keep their books up-to-date.

Amateur Radio; April, 1949

# New Incomes—

**VKIADK**—R. W. Street, National Antarctic Expedition, Macquarie Island.  
**VIPE**—A. R. BURETON, National Antarctic Expedition, Heard Island.  
**IVU**—R. G. P. Gatt, National Antarctic Expedition, Heard Island.  
**VEKAFD**—D. J. Fisher, 155 Albany Rd., Peterborough.  
**TAJR**—J. C. Turner, 26 Roberts St., Jannali.  
**TAJT**—K. F. Pulling, Post Office, Coffs Harbour.  
**TAJK**—J. S. Kemp, 34 Irvine Cres., Ryde.  
**TAMA**—C. L. Welser, 31a Salisbury Rd., Kensington.  
**2AMJ**—Miss J. L. Jirs, 87 Second Ave., South Leichhardt.  
**2ARY**—C. H. Archbold, Chittaway Point, via Wyong.  
**2ASR**—A. W. Graves, 109 Clovelly Rd., Randwick.  
**2ATW**—T. W. Marks, 11 Woods Street, Manly.  
**2AWW**—J. M. Baillo, 85 Harrow Rd., Bexley.  
**2AYC**—P. Long, 20 Parkham St., Moore Park.  
**2AWZ**—D. Andrews, 61 Cox's Rd., North Ryde.  
**VEKACU**—C. W. Smyth, 656 Bell St., W. Preston.  
**3ACV**—R. C. Fisher, Elwanda Ave., Mildura.  
**3AVD**—A. M. Dobie, 206 Pruth Rd., Hughdale.  
**3AVY**—T. F. Webb, 8 Hilda St., Black Rock.  
**3AWC**—W. J. Currie, 12 Strevell St., Williamstown.  
**3MG**—R. W. Jans, 20 Coolgan Ave., East Melbourne.  
**VEKAP**—A. L. Berry-Porter, Grant St., Atherton.  
**4FP**—J. P. Pickles, 61 Liverpool St., Clayfield.  
**4GA**—C. E. Goodall, Cook St., Atherton.  
**4JB**—J. P. Harter, 28 Macarthur St., South Townsville.  
**4NP**—P. H. Barker, c/o Mrs. Sandall, River Park, Fairfield.  
**4PO**—R. Oliver, Jaffray, via Innisfail.  
**VEKFR**—E. J. Rieley, 45 Edward St., Brighton.  
**5IF**—L. J. Pleser, 55 Halsbury Ave., Kingswood.  
**5IJB**—R. Stachan, Hospital Rd., Port Augusta.  
**5IL**—H. L. Robertson, 11 North St., Frewville.  
**5BY**—E. Burgess, c/o Halsbury Hotel, Salisbury.

**VKOKU**—R. H. Campbell, 16 Doonan Rd., Claremont.  
**VKTKA**—R. E. Millin, 10 Minallo Ave. and Lockwood St., West Hobart.  
**VKORO**—R. M. Ellison, Papuan Missionary School, Boumaba, via Port Moresby, P.T.  
**Alterations—**  
**VKTAB**—J. W. Haves, 61 Outlay Park Ave., Outlay.  
**2ABV**—I. Scotland, 28 Figures Ave., Randwick.  
**2ACM**—M. Chan, 25 Dulloo St., Paddington.  
**2ADB**—D. C. Caldwell, 1 Fletcher St., Strathfield.  
**2ADG**—F. J. Dark, 109 Arbutus St., Croydon.  
**2ADH**—J. B. Williams, 82 Auckland St., Bega.  
**2ADK**—E. G. Pugh, 208 Morrison Rd., Ryde.  
**2AH**—K. L. Finney, Flat 6, "Connell Court," Connell's Point Rd. St. Hubertville.  
**2AMA**—D. L. Weiser, 51a Salisbury Rd., Kensington.  
**2AMZ**—H. N. Young, Kardella Cres., Narwee.  
**2AOF**—H. C. Freeman, 5 Cantonment St., Hurstville.  
**2AWW**—A. W. White, 41 Chaffin St., Beverly Hills.  
**2EA**—L. Martin, Lower Kangaroo Creek, via South Grafton.  
**2ELC**—N. Glascock, 55 Beaconsfield Rd., Chesham.  
**2EH**—A. S. Littlejohn, 3 Emmerich St., Leichhardt.  
**2QL**—F. T. Hine, 18 Bridge Rd., Homebush.  
**2QM**—C. Broadbent, 30 Jamieson & Orange Ave., North Curl Curl.  
**2RO**—A. R. Gray, Lot 65, Jean St., Chullora.  
**2SA**—W. E. Salmon, 108 Plaza St., Kirrawee.  
**2TJ**—W. C. Ball, Oriental Hotel, Cook's Hill.  
**2TG**—A. Y. Gellie, Public School, Mummelgum, via Castro.  
**2UT**—J. T. Todd, Alan St., Rydalmere.  
**2YV**—M. H. Myers, 26 Kardella Rd., Clifton Gardens, Moama.  
**VEKAW**—A. W. H. Wright, Air and Ground Radio School, R.A.A.F., Ballarat.  
**3M**—H. G. Chandler, 6 Carrington St., Pascoe Vale.  
**3ADR**—J. R. Roy, 23 Pine Ave., Elwood.  
**3AFI**—F. C. Lambert, 281 Main St., Balaclava.

**3APW**—R. C. Treven, 36 Yaldwin St., Kyneton.  
**3ARC**—G. J. Griffiths, 50 Holmes Rd., Moonee Ponds.  
**3AMK**—H. W. Bauman, "Amfeld," Bemborough Ave., Balwyn.  
**3ANL**—E. L. Blackmore, 240 Auburn Road, Auburn.  
**3ARY**—R. J. Birks, 795 Moto St., Ballarat.  
**3AWW**—W. R. Moffatt, 2 Marousa St., East Malvern.  
**3OW**—K. J. Millbourn, 5a Melville St., Hawthorn.  
**3DN**—D. Newton, O'Shannassy St., Nunawading.  
**3DP**—J. M. Farrer, Deep Lea, via Skewell.  
**3DW**—J. W. Turry, c/o Wandend Theatre, Wandend.  
**3IV**—E. K. Ridgway, 44 Inkerman St., Ballarat.  
**3JX**—J. K. Sydney, 28 Fowley Ave., Caulfield North.  
**3KE**—E. T. J. Kerby, 17 Rayview Ave., Auburn.  
**3KQ**—G. T. Benwell, 23 Draper St., Ormond.  
**3OE**—O. A. Oxley, 102 Riverside Rd., Surrey Hills.  
**3PB**—P. C. Bennett, 66 Stady Grove, Nunawading.  
**3QK**—H. Jenkins, Churchill Island, via Newhaven.  
**3QR**—L. L. White, c/o Rev. White, "Parilla" Esplanade, Dromana.  
**3RW**—H. P. Webber, 87 Lucerna Cres., Alphington.  
**3RO**—J. H. Jones, 38 Harwood St., Box Hill.  
**3ST**—J. L. Coghlan, 458 Dorcas St., South Melbourne.  
**3WP**—P. V. Inglis, Jeffrey St., Bentleigh.  
**3WS**—P. G. Brown, 9 Kinross St., Brighton Beach.  
**3XY**—L. H. McIntyre, 62 Chelwood St., West Melbourne.  
**3YO**—D. K. Smith, 10 Hornby St., East Brighton.  
**3YV**—L. R. Vaylor, c/o J. Steffen, The Bookery, Maribyrnong.  
**3ZY**—W. F. Burgess, 3 Curzon St., Ivanhoe.  
**VEKAL**—A. F. Kearney, 602 Kent St., Melbourne.  
**4CP**—G. G. Calves, Landsdowne Ter., Seawater, Brisbane.  
**4FV**—J. F. Bull, King St., Box 25, Nth. Mackay.  
**4PI**—L. L. Silver, "Lawbell," Junction Rd., Mornington.

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time to time with a phone signal on 40. Frank Flahar, a new member to the gang here, recently received his ticket; congratulations Frank, hope you hear you soon. SAGP has closed down and dismantled his gang. Tom hopes to leave the district soon. There are no more gangs in the area except Guinea or parts would be there. ANG is busy with the harvest and game he is kept busy trying to save the crop. AGE keeps the akode with SWI each day. The akode will be used to make money usually gathering bats and pieces together and will have a signal on 14 M-band in the near future. No receiver is working quite well on 58 Mc. Noel says that 60 Mc. man for this area when he gets settled down.

## CENTRAL WESTERN ZONE

The sons-a-thanks go to 3AKW for his able representation at the recent State Convention in Melbourne, and his detailed report forwarded to the secretary 3AKW has all the bits and pieces assembled for the vec beam, so it should not be long now 3AKW was caught napping at the last news break-up, formed up four hours late, never mind, you'll still get it. The 3AKW boys are still going now at 3AKP and as soon as some beam has been ironed out, all should be well. 3EP has turned away to fishing, what's the DX per cast and how many get away? Ted also has laid the old kerosene heater aside, so we will, make the background winter. Old George at Ararat has caught more than 1000 birds these days and BON is heard at the usual hour.

31Q (that breaker of skebs) has at last managed to put a 56 Mc signal over the hill into Maryborough and is now looking for bigger game. Willie is so small, and we believe carried himself in his usual manner at the State Convention. What Willie wants to know is why powdered the shack while he was away? It's sure to catch up with you sometime. BH Allan decided that Callawadda had been a bit rough enough, so after chasing rabbits out of the rig, got back into business on 14 Mc. See you next same hook-up. **SECOND SUNDAY** in month. 1130 Kc at 10 A.M. control station SYW.

### EASTERN ZONE

Eastern Zone business will be conducted after the first round, approximately 8.30 p.m. This will replace the old time of 2100 hours. The hook-up w. commence at 8 p.m. as usual.

302 and 3PR have been busy arranging the Eastern Zone Portable Contest. Ron went on 30 for the first time in months and worked 2LV. Hami got the power on yet. 2LV is building a rig to operate on a.c. ready for his projected move from the hills of Tráfalgar to somewhere in the suburbs. 3LAMP of Tráfalgar was heard on 40 trying out a "CLAMP" oscillator as a v.f.o. We were pleased to hear you in the hook-up on 19th February. Norm. 3BB has a new junior op and a new rig. The rig works well on 80 and 40. Bert was smiling 27 watts when he was in the last hook-up.

Our world's President reported receiving a phase call from "Snowy" SAMR recently. He is located at Clyde, but unfortunately is too busy bringing the "Snowy" SAMR back home to attend the party on the Sunday night book-up on \$850 Kc. When you do come on "Snowy," SDI lost another tranny on the way to the party. The party was held on the 31st and 1st of January. SDI had a great time. SDI completed his e.r.e., and is checking up on his son-in-law. SAMR's new modulators are working well. SAMR has been working on the 3rd of January. SAMR has mounted the s.f.a. on the receiver he has been building for the last 18 months. It's coming along well. SAMR is still in it. It finished. It worked on G7. We are sorry to hear that SAMR has returned to VK6. Hope you enjoyed your stay in Victoria, Frank. SAMR has returned from a long trip to the States. SAMR has been very busy during recent heavy rains. Hope there was no damage. Eric, BVLVS used their beam tower finished at 10:00 PM. SAMR has been working on the tower from inside. They really did a good job. SAMR

## NORTH WESTERN ZONE

The following were members were seen at the State Convention held in Melbourne: VEs SBI, SBE, SJA, SHP, SSE, and SUT. Your scribe had his eyes opened to find that Jack arrived about two hours late on the Friday night, but was up at 6.30 a.m. next morning to pick up SSE and SBI. The other Ballarat boys were not out of bed, so we were told; they made the grade at 11 a.m.

32U is on (three tubes) leave and has a 100 revamped for 8 volt tubes. 3MB is holidaying in VK3 and, what's the YLs like over there Andy. Heard Kevin working some DX on 30 other night, also Gordon 8AGV coming in here on 20 metres at 55. 3VA got tangled in the DX contest numbers, but the W chap put him OK. 3HW called his head off one night on 30 just a few KC higher than 3HF with no success, while Harry was just working them one after the other, that's the way beams for you John.

Heard the other day that 3VA and 3GR are planning a trip to VK4 very soon. 3HG is also going on holidays within next few weeks. 3BL, at the time of writing this, is in bad with eye trouble, but hope Bert you will be up soon. 3SU was out 40 for a rag chew with mame cheery voice, also 3WT is putting out fine signal with his little rig. 3YE has new antenna up for 20, but came on 40 other night to meet the boys on the "gentlemen's" band once more. 3PB still busy at shop and 3EQ has a fly at 20 with good results, working Gs on phone.

3JA finds time to work a little on 80, with 3BG on same band, when not walking the floor with new junior op. Have not heard 3II on for some time now, but 3AGD (his brother-in-law) puts in good signal here on 40, so what about getting Leigh to come out of his shell? John for a QSO on 80 some night. Please remember chaps next some book-up on the 3rd April at 10 a.m. on approx. 7150 Kc. so roll up as we still want more in our back-ups, don't let our seats down fellows.

**Quoniam Amateur Radio Club**—There was a good attendance at the Geelong Amateur Radio Club when SA1G gave a lecture on "Receivers I Have Built." Fred drew circuits of these receivers on the blackboard and explained the operation of each in simple language. He finished with a practical demonstration of his 8-tube home-built "1946 Amateur Junior" receiver. At the following meeting members will come two visitors, namely, John Watson VS3ABM, SA1J, and SA1JG, who will talk on the S.B. circuit, and Alan Choo SA2PO explained the construction of his d.f. loop. SA1KE outlined his 18-tube 15-tube high frequency receiver and explained how it could be adapted for use on 144 Mc. On Sunday, 6th, the members of the club went to find out if a hidden transmitter. The first to find it was SA1KE and SA1BS, who were together.

## NORTH WESTERN ZONE

3YL is bidding a new 80 foot stick to replace the 50 footer that crashed; he is putting drops up in 3LL is back at New Lake and putting out the usual fb. sig. 3HR has re-wound his alternator and is heard occasionally on our hook-ups. Charlie is worried that the alternator output drops 10 volts under load. 3OA has w.m. 4 element rotary on 8

Billings and a conservative working OK. You is a  
 getting a new more conservative. He tried a new  
 bull the w.d. job using ordinary count on the  
 seems m.w. job using with 10 odu co-ax. cut  
 right up with a 8 point gain over his diplo. and  
 the State Convention and last general  
 JAWK puts out nicely following rain  
 modulated by 1822. in p.p.p. all run of 240  
 volts d.c. MAT. When he took into his perman  
 antenna. JAWK of Son Lake puts out nice  
 with low power. See you in our book-on more  
 on 41 meters phony, also attended the State Con  
 vention, making a tour of New N.W. Zone man  
 of petrol to bring test DQ and as well as a lot  
 30X has made tentative enquiries about V.L.O. di  
 I would thank the more rotary also V.L.O. di

32G has advertised his rig for sale. We don't know yet whether Johnnie has gone cold on Ham Radio or is merely re-building. 32M Ndu had a busy month's holiday, attending State Convention, Avelon Convention, General Meeting, Mornington Sub-Ranch meeting, and V.H.P. Group meeting, also visiting many Ham shacks and is going home with further ideas. 32K intends to replace three elements in his rig, with a new element w.s. rotary, and 320 ohm ribbon (which has blown to bits) with 40 ohm 25-45.

## QUEENSLAND

At the seventeenth Annual Meeting of the Queensland Division held on 2-4th February, 1949, the election of office-bearers for the coming year was completed, with the following results:

President: Mr. A. Wain (4AW). Vice-Presidents: Messrs. V. Jells (3VJ) and P. J. Kelly (4KJ). Secretary: Mr. W. L. Stevens (1TB). Treasurer: Mr. J. F. Farrell (4WJ). Traffic Manager: Mr. A. J. Greenhous (4AG). Sub-Editor to "A.R.": Mr. F. H. Shannon (4SN). **OSL Officers** Messrs. H. Campbell (4BC) and E. Luke (4EL). Station Manager: Mr. F. M. Nolan (4PN). Country Representative: Mr. F. H. Shannon (4SN). Student's Representative: Mr. Elliott. Librarian: Mr. W. Fisher (4WF).

A ballot taken on the advisability of raising Membership Fees to 30, per annum resulted in 48 for No and 19 for Yes.

Membership at the end of last year showed 71 country and 18 city. In addition to these trans-

mitting members, the Division has 63 Associates in the city and 13 in the country. During the past year 65 food parcels were sent to Britain, and all but one reached its destination safely.

Students will be pleased to hear that 4WI will, in the near future, transmit code practice at slow, medium and fast speeds on a frequency of 8594 Kc. between the hours of 1830 and 2000 on Tuesdays.

Plans for the setting up of an Emergency Network are well in hand, and all members interested should contact 4FN immediately, giving details of portable equipment available. You are advised to listen to the 4WI broadcasts on 2198 Kc. and 14,423 Kmc. on Sunday mornings for further details. Members who are holding Library Books are asked to remember that other members would like to read those

speaking of h.f. bands—what's all this we hear of trying to make out that VKO in a STATE for W.A.S. on 30 Mr. Since when was New Guinea a State of Australia? If we want to make "all VK" the requirement for W.A.S. why not have in VKK

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## Page 19





# TRANSFORMERS OF DISTINCTION

## LINE TO VOICE MATCHING TRANSFORMERS

The transformers described in this section are complementary to those listed in the previous month, and are intended to match 500 or 250 ohm output lines to any number of speakers from one to twenty inclusive.

They are high efficiency units with interleaved cores and low insertion loss. Although in many cases their nominal specifications appear suitable for direct coupling of valves to speaker voice coils, no provision has been made to prevent saturation due to superimposed direct current, and they should not be used for this application.

### ITEM 65.

#### Type No. LV10

Primary Z: 1000 ohms tapped 500 ohm-5w  
Secondary Z: Speaker V-Coil 2 ohms  
Base: 2 5/8 x 2 3/4 x 2 1/4" H Wgt. 1lb 8 ozs  
Mntg: MH1B "S" is 1-6"  
Base plate fits standard 8" speakers.  
No. Speakers matched: 500 ohm-1 or 2.  
No. Speakers matched: 250 ohm-2 or 4.

### ITEM 66.

#### Type No. LV20

Primary Z: 2000 ohms tap 1500 ohm. 3W.  
Secondary Z: Speaker V-Coil 2 ohms  
Base: 2 5/8 x 2 3/4 x 2 1/4" H Wgt. 1lb 8 ozs  
Mntg: MH1B "S" is 1-6"  
Base plate fits standard 8" speakers.  
No. Speakers matched: 500 ohm-3 or 4.  
No. Speakers matched: 250 ohm-6 or 12.

### ITEM 67.

#### Type No. LV30

Primary Z: 3000 ohms tap 2500 ohm. 5W.  
Secondary Z: Speaker V-Coil 2 ohms  
Base: 2 5/8 x 2 3/4 x 2 1/4" H Wgt. 1lb 8 ozs  
Mntg: MH1B "S" is 1-6"  
Base plate fits standard 8" speakers.  
No. Speakers matched: 500 ohm-5 or 12.  
No. Speakers matched: 250 ohm-10 or 12.

### ITEM 68.

#### Type No. LV40

Primary Z: 4000 ohms tap 3500 ohm. 5W.  
Secondary Z: Speaker V-Coil 2 ohms  
Base: 2 5/8 x 2 3/4 x 2 1/4" H Wgt. 1lb 8 ozs  
Mntg: MH1B "S" is 1-6"  
Base plate fits standard 8" speakers.  
No. Speakers matched: 500 ohm-7 or 16.  
No. Speakers matched: 250 ohm-14 or 16.

### ITEM 69.

#### Type No. LV50

Primary Z: 5000 ohms tap 4500 ohm. 5W.  
Secondary Z: Speaker V-Coil 2 ohms  
Base: 2 5/8 x 2 3/4 x 2 1/4" H Wgt. 1lb 8 ozs  
Mntg: MH1B "S" is 1-6"  
Base plate fits standard 8" speakers.  
No. Speakers matched: 500 ohm-9 or 16.  
No. Speakers matched: 250 ohm-18 or 20.

The correct value of primary impedance for parallel arrangement for equal distribution of the output of an amplifier is found by multiplying the number of speakers by the line impedance. Take, for example, a 30 watts amplifier feeding six speakers from a 500 ohm line.

The required primary impedance is equal to the number of speakers in parallel multiplied by the line impedance, i.e., 6 x 500, which equals 3000. Thus, Type LV30 would be selected, as this unit has a primary impedance of 3000 ohms, and the six speakers would be served from the 500 ohm tapplings of the output transformer, as 3000 divided by 6 equals 500.

Type LV 30, however, will also serve for 12 speakers, if required, but they would then be placed in parallel across the 250 ohm tapplings on the transformer, as 3000

divided by 12 equals 250 ohms, and the reflected load would still be correct.

In many installations, however, owing to varying noise levels and other modifying factors, each speaker may be called upon deliver different amount of power. In these circumstances, the primary impedance may be determined by applying the following formula—

$$2X \text{ equals } \frac{W}{W_s}$$

where Xz equals the primary impedance to be determined. Z equals the value of line impedance to be used.

W equals the power in watts from the amplifier.

W<sub>s</sub> equals the required power for each speaker. As an example, a 30 Watts amplifier using 500 ohm line output is to have 3 speakers, and each speaker is to have the following power distribution—

Speaker No.	Watts Each	Method of Calculation	Impedance
1	10	300 x 30 ÷ 10	Use LV20
2	8	500 x 30 ÷ 8	Use LV20
3	3	500 x 30 ÷ 3	Use LV20
4	5	500 x 30 ÷ 5	Use LV40
5	4	500 x 30 ÷ 4	Use LV50

Substituting LV30 (2000 ohms) for speaker No. 2 and LV40 (3500 ohms) for speaker No. 5 means that standard units may be used, with a slight decrease in power to speaker No. 2 and a slight increase in power to speaker No. 5.

These five transformers when wired in parallel would present a terminal impedance of 335 ohms, approximately which is a negligible degree of mismatching.

## HIGH FIDELITY LINE TO VOICE COIL TRANSFORMERS

The following high level line to voice coil or recording head input transformers are complementary to the "AF" and "AW" series shown last month. These transformers are high fidelity units with an individual insertion loss of not greater than 0.5 db and a frequency range +/- 0.5 db 25 cps to 15 Kc/s.

References to their dimensions will indicate the large core structures adopted to keep iron distortion to negligible proportions by the use of low flux inductions at the maximum signal voltages incurred.

### ITEM 70.

#### Type No. VW15

Primary Z: 500 ohms 34db. 15 Watts  
Secondary Z: Speaker V-Coil 15 ohms Voice Coil  
Base: 2 1/2 x 1 1/2 x 3 7/16" H Wgt. 1lb.  
Mntg: V14 "S" is 1 1/4"

### ITEM 71.

#### Type No. VW 126

Primary Z: 500 ohms 30 db. 45 Watts  
Secondary Z: Speaker V-Coil 12 ohms tapped 6 ohms  
Base: 4 1/2 x 4 x 3 3/4" H Wgt. 8 lbs.  
Mntg: VS10 "S" is 2 1-8"

### ITEM 72.

#### Type No. VW84

Primary Z: 500 ohms 30 db. 45 Watts  
Secondary Z: Speaker V-Coil 8 ohms tapped 4 ohms  
Base: 4 1/2 x 4 x 3 3/4" H Wgt. 8 lbs.  
Mntg: VS10 "S" is 2 1-8"

### ITEM 73.

#### Type No. VW 205

Primary Z: 500 ohms 30 db. 45 Watts  
Secondary Z: Speaker V-Coil 2 ohms tapped 1 ohm  
Base: 4 1/2 x 4 x 3 3/4" H Wgt. 8 lbs.  
Mntg: VS10 "S" is 2 1-8"

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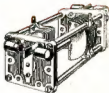
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proof moulded case measures 4 1/2" x 3 1/2" x 1-15/16  
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DC Volts	DCmA	AC Volts	Resistance
0-0.25	0-1	0-10	0.5-20 -2000ohms
0-10	0-10	0-50	50-3000-200,000ohms
0-50	0-50	0-250	500-200,000-2 Meg. ohms
0-250	0-500	0-500	5000-200,000-20
0-500		0-1000	Meg. ohms
0-1000		0-2500	
0-2500			

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